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PRELIMINARY ROAD ALINEMENT THROUGH THE GREAT KAVIR IN IRAN BY REPETITIVE ERTS-1 COVERAGE

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ABSTRACT

The Great Kavir in north central Iran is an extensive elevated peneplain composed of intricately folded Miocene and Pliocene sediments which are rich in evaporites. Interfingering within the peneplain surface are salt-encrusted depressions which occupy 37 percent of the area of the Great Kavir. The salt, derived from the evaporites, has no bearing strength through most of the year when it is saturated; it may form rough surfaces that are unstable.

Access to the Great Kavir is generally limited to the period August through October when some salt crusts will support limited vehicular movement. The condition of the salt crusts and their parent sediments during the long wet season have been unknown. This absence of information about the surface of the Great Kavir has prevented an intensive study of a possible road alinement which could shorten the present route between northern and central Iran by 760 km.

False color diazo composites of bands 4, 5, and 7 were prepared from positives of ERTS-1 MSS images taken of the Great Kavir on September 2 and 20, 1972; December 19, 1972; February 11, 1973; March 1, 1973; and May 12, 1973. These scenes presented a record of the seasonal hydrologic changes that occurred from the dry to the wet season. During the period of maximum inundation and lowest bearing strengths, as inferred from the image of May 12, 1973, it was possible to select a preliminary road alinement that would avoid the wettest or roughest areas and take advantage of the best terrain and shortest distance. The eventual road alinement should be based on a longer record of observation and on-site investigations.

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